Stanford



Christopher Lock

Clinical Associate Professor, Adult Neurology

NIH Biosketch available Online Curriculum Vitae available Online

CLINICAL OFFICE (PRIMARY)

- **Stanford Neuroscience Health Center**

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Bio

CLINICAL FOCUS

- Multiple Sclerosis
- Neuroimmunology
- Clinical Neurophysiology

ACADEMIC APPOINTMENTS

- Clinical Associate Professor, Adult Neurology

ADMINISTRATIVE APPOINTMENTS

- Clinical Trials Director, Stanford Multiple Sclerosis and Neuroimmunology Program, (2015- present)
- Member, SHC Pharmacy and Therapeutics Specialty Drug Sub-Committee, (2016-2017)

HONORS AND AWARDS

- Entrance Scholarship, Westminster Hospital Medical School, London, UK (1974)
- Neuroimmunology Fellow, National Multiple Sclerosis Society (1997-2000)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Director, San Francisco Neurological Society (2024 - present)
- Board Member, California Neurological Society (2023 - present)
- Member, American Academy of Neurology (1994 - present)

PROFESSIONAL EDUCATION

- Residency: Stanford University Dept of Neurology (1997) CA
- Board Certification: Neurology, American Board of Psychiatry and Neurology (2020)
- Fellowship: Stanford University Neuroimmunology and Multiple Sclerosis Fellowship (2000) CA

- Internship: Stanford University Internal Medicine Residency (1994) CA
- Medical Education: Westminster Medical School (1980) England

LINKS

- Support our research: http://med.stanford.edu/neurology/research.html
- Get a Second Opinion: https://stanfordhealthcare.org/second-opinion/overview.html

Research & Scholarship

CLINICAL TRIALS

- A Study to Investigate the Safety, Tolerability, and Processing by the Body of Intravenous and Subcutaneous RO7121932 Administration in Participants With Multiple Sclerosis, Not Recruiting
- Study to Explore the Mechanism of Action of Ocrelizumab and B-Cell Biology in Participants With Relapsing Multiple Sclerosis (RMS) or Primary Progressive Multiple Sclerosis (PPMS), Not Recruiting

Publications

PUBLICATIONS

- **Multiparameter flow cytometry of CSF identifies elevated CD8+ effector memory and TEMRA T-cells in immune-mediated neurologic disorders.** *Journal of neuropathology and experimental neurology*

  Wu, D., Zhang, S., Jamal, Y. A., Sarkar, T. T., Tomczak, A., Sumera, J., Oak, J., Melamed, E., Nie, E., Galetta, K., McDonald, J., Lock, C., Kipp, et al

  2026

- **Distinct Reactivity Patterns to EBV Nuclear Proteins and CNS Antigens Distinguish CNS Demyelinating Disorders from Systemic Autoimmunity**

  Sattarnezhad, N., Held, F., Babaei, M., Gawde, S., Ho, P., Barrett, A., Wijerante, T., Comanescu, A., Parsafar, S., Bartels, F., McDonald, J., Kipp, L., Van Haren, et al

  SAGE PUBLICATIONS LTD.2025: 309-310

- **High-dimensional, targeted immunogenetic profiles of "idiopathic" myelitis with correlative risk and protective factors**

  Sarkar, T., Sumera, J., Tomczak, A., Bachar, S., Ton-Nu, C., Joseph, Y., Lee, J., Osoegawa, K., Vina, M., Wu, D., Nie, E., Sattarnezhad, N., McDonald, et al

  SAGE PUBLICATIONS LTD.2024: 1230-1231

- **Paired serum and CSF immunoprofiling guides treatment of refractory CNS autoimmunity**

  Wu, D., Sarkar, T., Nie, E., Galetta, K., McDonald, J., Tomczak, A., Sumera, J., Kipp, L., Lock, C., Dunn, J., Han, M.

  SAGE PUBLICATIONS LTD.2024: 1196

- **Prevalence, Demographic, and Clinical Factors Associated With Cognitive Dysfunction in Patients With Neuromyelitis Optica Spectrum Disorder (vol 102, e207965, 2024)** *NEUROLOGY*

  Vlahovic, L., McDonald, J., Hinman, J., Tomczak, A., Lock, C., Palmer, C. A., Cook, L. J., Yeaman, M. R., Burnett, M. K., Deutsch, G. K., Nelson, L. M., Han, M. H., CIRCLES Study Grp

  2024; 103 (3)

- **The Determination of Free Energy of Hydration of Water Ions from First Principles.** *Journal of chemical theory and computation*

  Butin, O., Pereyaslavets, L., Kamath, G., Illarionov, A., Sakipov, S., Kurnikov, I. V., Voronina, E., Ivahnenko, I., Leontyev, I., Nawrocki, G., Darkhovskiy, M., Olevanov, M., Cherniavskyi, et al

  2024

- **Emerging Cerebrospinal Fluid Biomarkers of Disease Activity and Progression in Multiple Sclerosis.** *JAMA neurology*

  Cross, A. H., Gelfand, J. M., Thebault, S., Bennett, J. L., von Budingen, H. C., Cameron, B., Carruthers, R., Edwards, K., Fallis, R., Gerstein, R., Giacomini, P. S., Greenberg, B., Hafler, et al

  2024

- **Neural Network Corrections to Intermolecular Interaction Terms of a Molecular Force Field Capture Nuclear Quantum Effects in Calculations of Liquid Thermodynamic Properties.** *Journal of chemical theory and computation*

Kurnikov, I. V., Pereyaslavets, L., Kamath, G., Sakipov, S. N., Voronina, E., Butin, O., Illarionov, A., Leontyev, I., Nawrocki, G., Darkhovskiy, M., Olevanov, M., Ivahnenko, I., Chen, et al

2024

- **Combining Force Fields and Neural Networks for an Accurate Representation of Bonded Interactions.** *The journal of physical chemistry. A*

  Kamath, G., Illarionov, A., Sakipov, S., Pereyaslavets, L., Kurnikov, I. V., Butin, O., Voronina, E., Ivahnenko, I., Leontyev, I., Nawrocki, G., Darkhovskiy, M., Olevanov, M., Cherniavskyi, et al

  2024

- **Prevalence, Demographic, and Clinical Factors Associated With Cognitive Dysfunction in Patients With Neuromyelitis Optica Spectrum Disorder.** *Neurology*

  Vlahovic, L., McDonald, J., Hinman, J., Tomczak, A., Lock, C., Palmer, C. A., Cook, L. J., Yeaman, M. R., Burnett, M. K., Deutsch, G. K., Nelson, L. M., Han, M. H.

  2024; 102 (1): e207965

- **Combining Force Fields and Neural Networks for an Accurate Representation of Chemically Diverse Molecular Interactions.** *Journal of the American Chemical Society*

  Illarionov, A., Sakipov, S., Pereyaslavets, L., Kurnikov, I. V., Kamath, G., Butin, O., Voronina, E., Ivahnenko, I., Leontyev, I., Nawrocki, G., Darkhovskiy, M., Olevanov, M., Cherniavskyi, et al

  2023

- **Epidemiological and Clinical Outcome Determinants of Post-COVID-19 Myelopathy**

  Sumera, J., Sarkar, T., McDonald, J., Sattarnezhad, N., Nie, E., Kipp, L., Dunn, J., Han, M., Joseph, Y., Tomczak, A., Lock, C.

  SAGE PUBLICATIONS LTD.2023: 719

- **SARS-CoV-2 Vaccine Immune Response on Anti-Complement Therapy, Eculizumab**

  Sattarnezhad, N., Sumera, J., McDonald, J., Nie, E., Tomczak, A., Joseph, Y., Kalle, S., Sarkar, T., Kipp, L., Lock, C., Dunn, J. E., Han, M.

  LIPPINCOTT WILLIAMS & WILKINS.2023

- **Differential effects of anti-CD20 therapy on CD4 and CD8 T cells and implication of CD20-expressing CD8 T cells in MS disease activity.** *Proceedings of the National Academy of Sciences of the United States of America*

  Shinoda, K., Li, R., Rezk, A., Mexhitaj, I., Patterson, K. R., Kakara, M., Zuroff, L., Bennett, J. L., von Büdingen, H. C., Carruthers, R., Edwards, K. R., Fallis, R., Giacomini, et al

  2023; 120 (3): e2207291120

- **Protein-Ligand Binding Free-Energy Calculations with ARROW—A Purely First-Principles Parameterized Polarizable Force Field.** *Journal of chemical theory and computation*

  Nawrocki, G., Leontyev, I., Sakipov, S., Darkhovskiy, M., Kurnikov, I., Pereyaslavets, L., Kamath, G., Voronina, E., Butin, O., Illarionov, A., Olevanov, M., Kostikov, A., Ivahnenko, et al

  2022

- **Evaluation of neurotrophic factor secreting mesenchymal stem cells in progressive multiple sclerosis** *MULTIPLE SCLEROSIS JOURNAL*

  Cohen, J. A., Lublin, F. D., Lock, C., Pelletier, D., Chitnis, T., Mehra, M., Gothelf, Y., Aricha, R., Lindborg, S., Lebovits, C., Levy, Y., Motamed Khorasani, A., Kern, et al

  2022: 13524585221122156

- **Clonally Expanded B Cells in Multiple Sclerosis Bind EBV EBNA1 and GlialCAM.** *Nature*

  Lanz, T. V., Brewer, R. C., Ho, P. P., Moon, J. S., Jude, K. M., Fernandez, D., Fernandes, R. A., Gomez, A. M., Nadj, G. S., Bartley, C. M., Schubert, R. D., Hawes, I. A., Vazquez, et al

  2022

- **B Cells, T Cells and Inflammatory CSF Biomarkers in Primary Progressive MS and Relapsing MS in the OBOE (Ocrelizumab Biomarker Outcome Evaluation) Trial**

  Bar-Or, A., Bennett, J., Von Budingen, H., Carruthers, R., Edwards, K., Fallis, R., Fiore, D., Gelfand, J., Giacomini, P., Greenberg, B., Hafler, D., Longbrake, E., Assman, et al

  LIPPINCOTT WILLIAMS & WILKINS.2020

- **Ocrelizumab treatment reduced levels of neurofilament light chain and numbers of B cells in the cerebrospinal fluid of patients with relapsing multiple sclerosis in the OBOE study**

  Cross, A., Bennett, J., von Budingen, H., Carruthers, R., Edwards, K., Fallis, R., Fiore, D., Gelfand, J., Giacomini, P., Greenberg, B., Hafler, D., Harp, C., Assman, et al

  LIPPINCOTT WILLIAMS & WILKINS.2019

- **MR susceptibility contrast imaging using a 2D simultaneous multi-slice gradient-echo sequence at 7T.** *PloS one*
  Bian, W., Kerr, A. B., Tranvinh, E., Parivash, S., Zahneisen, B., Han, M. H., Lock, C. B., Goubran, M., Zhu, K., Rutt, B. K., Zeineh, M. M.
  2019; 14 (7): e0219705

- **Autoimmune Hepatitis During Treatment of Multiple Sclerosis with Alemtuzumab**
  Carlson, A., Bozinov, N., Kipp, L., Dunn, J., Lock, C.
  LIPPINCOTT WILLIAMS & WILKINS.2018

- **A Multi-scale Multiple Sclerosis Lesion Change Detection in a Multi-sequence MRI**
  Cheng, M., Galimzianova, A., Lesjak, Z., Spiclin, Z., Lock, C. B., Rubin, D. L.
  edited by Stoyanov, D., Taylor, Z., Carneiro, G., SyedaMahmood, T.
  SPRINGER INTERNATIONAL PUBLISHING AG.2018: 353–60

- **Janus-like opposing roles of CD47 in autoimmune brain inflammation in humans and mice** *JOURNAL OF EXPERIMENTAL MEDICINE*
  Han, M. H., Lundgren, D. H., Jaiswal, S., Chao, M., Graham, K. L., Garris, C. S., Axtell, R. C., Ho, P. P., Lock, C. B., Woodard, J. I., Brownell, S. E., Zoudilova, M., Hunt, et al
  2012; 209 (7): 1325-1334

- **Inhibitory role for GABA in autoimmune inflammation** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Bhat, R., Axtell, R., Mitra, A., Miranda, M., Lock, C., Tsien, R. W., Steinman, L.
  2010; 107 (6): 2580-2585

- **Gene-microarray analysis of multiple sclerosis lesions yields new targets validated in autoimmune encephalomyelitis** *NATURE MEDICINE*
  Lock, C., Hermans, G., Pedotti, R., Brendolan, A., Schadt, E., Garren, H., Langer-Gould, A., Strober, S., Cannella, B., Allard, J., Klonowski, P., Austin, A., Lad, et al
  2002; 8 (5): 500-508

- **The influence of the proinflammatory cytokine, osteopontin, on autoimmune demyelinating disease** *SCIENCE*
  Chabas, D., Baranzini, S. E., Mitchell, D., Bernard, C. C., Rittling, S. R., Denhardt, D. T., Sobel, R. A., Lock, C., Karpuj, M., Pedotti, R., Heller, R., Oksenberg, J. R., Steinman, et al
  2001; 294 (5547): 1731-1735

- **The role of TNF alpha and lymphotoxin in demyelinating disease** *ANNALS OF THE RHEUMATIC DISEASES*
  Lock, C., Oksenberg, J., Steinman, L.
  1999; 58: 121-128

- **The role of TNFalpha and lymphotoxin in demyelinating disease.** *Annals of the rheumatic diseases*
  Lock, C., Oksenberg, J., Steinman, L.
  1999; 58: I121-8

- **EXPRESSION OF HLA-DR4 AND HUMAN CD4 TRANSGENES IN MICE DETERMINES THE VARIABLE REGION BETA-CHAIN T-CELL REPERTOIRE AND MEDIATES AN HLA-DR-RESTRICTED IMMUNE-RESPONSE** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Fugger, L., Michie, S. A., Rulifson, I., Lock, C. B., McDevitt, G. S.
  1994; 91 (13): 6151-6155

- **MINIMUM STRUCTURAL REQUIREMENTS FOR PEPTIDE PRESENTATION BY MAJOR HISTOCOMPATIBILITY COMPLEX CLASS-II MOLECULES - IMPLICATIONS IN INDUCTION OF AUTOIMMUNITY** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Gautam, A. M., Lock, C. B., Smilek, D. E., Pearson, C. I., Steinman, L., McDevitt, H. O.
  1994; 91 (2): 767-771

- **ANTIGEN RECOGNITION AND PEPTIDE-MEDIATED IMMUNOTHERAPY IN AUTOIMMUNE-DISEASE** *IMMUNOLOGICAL REVIEWS*
  Smilek, D. E., Lock, C. B., McDevitt, H. O.
  1990; 118: 37-71